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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,114	10/19/2003	Matthew A. Huras	YOR920030458US1 (590.118)	2917

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EXAMINER
CHEN, QING

ART UNIT	PAPER NUMBER
2191	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/689,114	HURAS ET AL.
	Examiner	Art Unit
	Qing Chen	2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>22 January 2004</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20060825</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This is the initial Office action based on the application filed on October 19, 2003.

2.   **Claims 1-23** are pending.

Drawings

3.   The drawings were received on January 22, 2004. These drawings are not acceptable

because the drawings are not in compliance with 37 CFR 1.121(d). Any changes to an

application drawing must be in compliance with 37 CFR 1.84 and must be submitted on a

replacement sheet of drawings, which shall be an attachment to the amendment document and, in

the top margin, labeled "Replacement Sheet."

Specification

4.   The disclosure is objected to because of the following informalities: "preferably is not

retained when *then* execution unit terminates" should presumably read -- preferably is not

retained when *the* execution unit terminates -- on page 12, lines 11 and 12.

        Appropriate correction is required.

5.   The use of trademarks, such as DB2 and AIX, has been noted in this application.

Trademarks should be capitalized wherever they appear (capitalize each letter OR accompany

each trademark with an appropriate designation symbol, *e.g.*, ™ or ®) and be accompanied by

the generic terminology (use trademarks as adjectives modifying a descriptive noun, *e.g.*, "the

JAVA programming language").

Although the use of trademarks is permissible in patent applications, the proprietary

nature of the marks should be respected and every effort made to prevent their use in any

manner, which might adversely affect their validity as trademarks.

Claim Objections

6.   **Claims 4-11 and 15-23** are objected to because of the following informalities:

- **Claims 4-11 and 15-22** recite the limitation "the throttling level." Applicant is

advised to change this limitation to read "the derived throttling level" for the purpose of

providing it with proper explicit antecedent basis.

- **Claim 21** contains a typographical error: "the utility *implement* the throttling level"

should presumably read -- the utility *implementing* the derived throttling level --.

- **Claim 23** contains a typographical error: "the method comprising, said method

comprising the steps of" should presumably read -- a method comprising the steps of

--. See 35 U.S.C. § 112, second paragraph, rejection of Claim 23 below.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

8.   **Claims 1-23** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

        Claim 1 recites the limitation "the apparatus." There is insufficient antecedent basis for

this limitation in the claim. In the interest of compact prosecution, the Examiner subsequently

interprets this limitation as reading "the system" for the purpose of further examination.

        Claims 2-11 depend on Claim 1 and, therefore, suffer the same deficiency as Claim 1.

        Claims 1-3, 12-14, and 23 recite the limitation "the system." There is insufficient

antecedent basis for this limitation in the claims. In the interest of compact prosecution, the

Examiner subsequently interprets this limitation as reading "the computer system" for the

purpose of further examination.

        Claims 4-11 depend on Claim 2 and, therefore, suffer the same deficiency as Claim 2.

        Claims 15-22 depend on Claim 13 and, therefore, suffer the same deficiency as Claim

13.

Claims 1-4, 6, 7, 9-15, 17, 18, and 20-23 recite the limitation "the utility." There is insufficient antecedent basis for this limitation in the claims. In the interest of compact prosecution, the Examiner subsequently interprets this limitation as reading "a utility" for the purpose of further examination.

Claims 5 and 8 depend on Claim 4 and, therefore, suffer the same deficiency as Claim 4.

Claims 16 and 19 depend on Claim 15 and, therefore, suffer the same deficiency as Claim 15.

Claims 1, 12, and 23 recite the limitation "the utilities." There is insufficient antecedent basis for this limitation in the claims. In the interest of compact prosecution, the Examiner subsequently interprets this limitation as reading "utilities" for the purpose of further examination.

Claims 2-11 depend on Claim 1 and, therefore, suffer the same deficiency as Claim 1.

Claims 13-22 depend on Claim 12 and, therefore, suffer the same deficiency as Claim 12.

Claims 6 and 17 recite the limitation "the multi-processes." There is insufficient antecedent basis for this limitation in the claims. In the interest of compact prosecution, the

Examiner subsequently interprets this limitation as reading "multi-processes" for the purpose of

further examination.

Claim 23 recites the limitations "the method" and "said method." There are insufficient

antecedent basis for these limitations in the claim. In the interest of compact prosecution, the

Examiner subsequently interprets these limitations as reading "a method" for the purpose of

further examination.

Claim Rejections - 35 USC § 101

9.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
requirements of this title.

10.   Claims 1-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter.

Claims 1-11 are directed to systems. However, the recited components of the systems

appear to lack the necessary physical components (hardware) to constitute a machine or

manufacture under § 101. Therefore, these claim limitations can be reasonably interpreted as

computer program modules—software *per se*. Furthermore, the specification discloses that the

invention may be implemented in software *(see Page 24: 8 and 9)*. Although the specification

expressly states that the invention may also be implemented in hardware of a combination of

hardware and software, the claims are construed to cover software under the broadest reasonable

interpretation, since the specification provides intrinsic evidence of such. Thus, the claims are

directed to functional descriptive material *per se*, and hence non-statutory.

The claims constitute computer programs representing computer listings *per se*. Such

descriptions or expressions of the programs are not physical "things." They are neither computer

components nor statutory processes, as they are not "acts" being performed. Such claimed

computer programs do not define any structural and functional interrelationships between the

computer program and other claimed elements of a computer, which permit the computer

program's functionality to be realized. In contrast, a claimed computer-readable medium

encoded with a computer program is a computer element, which defines structural and functional

interrelationships between the computer program and the rest of the computer, that permits the

computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at

1583-84, 32 USPQ2d at 1035.

Claim Rejections - 35 USC § 102

11.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
subsection of an application filed in the United States only if the international application designated the United
States and was published under Article 21(2) of such treaty in the English language.

12.   **Claims 1-23** are rejected under 35 U.S.C. 102(e) as being anticipated by **Douceur et al.**

(US 6,834,386).

As per **Claim 1,** Douceur et al. disclose:

- an arrangement for determining utilities within the computer system *(see Column 7: 6-11, "FIG. 5 shows a general architecture wherein a background process 108 (e.g., a groveler) includes tasks 110_1 and 110_2, each of which is regulated by a background task controller 112 in a manner that substantially limits its interference with a foreground process 114.")*;

- an arrangement for deriving a throttling level for each utility which quantifies the reduction in the rate at which a utility consumes resources *(see Column 7: 34-36, "... the background task controller 112 controls the activity of a process by separately throttling each individual task of that process.")*; and

- an arrangement for enforcing the derived throttling level for each utility *(see Column 7: 44-49, "A task may be given any CPU scheduling priority allowed by the system, e.g., normal priority, but may be throttled by the present invention by only allowing the task to operate for limited time slices at a low frequency relative to how often a foreground process is able to request CPU cycles.")*.

As per **Claim 2,** the rejection of **Claim 1** is incorporated; and Douceur et al. further disclose:

- wherein said arrangement for determining ascertains whether a utility has indicated its presence with the computer system *(see Column 7: 6-11, "FIG. 5 shows a general architecture wherein a background process 108 (e.g., a groveler) includes tasks 110_1 and 110_2,*

each of which is regulated by a background task controller 112 in a manner that substantially

limits its interference with a foreground process 114. ").

As per **Claim 3**, the rejection of **Claim 2** is incorporated; and <u>Douceur et al.</u> further

disclose:

-    wherein indicating the presence of a utility within the computer system comprises a

utility registering with a utility manager *(see Column 7: 6-11, "FIG. 5 shows a general*

architecture wherein a background process 108 (e.g., a groveler) includes tasks 110_1 and 110_2,

each of which is regulated by a background task controller 112 in a manner that substantially

limits its interference with a foreground process 114. ").

As per **Claim 4**, the rejection of **Claim 2** is incorporated; and <u>Douceur et al.</u> further

disclose:

-    wherein said arrangement for enforcing the derived throttling level is implemented

within a utility *(see Column 7: 44-49, "A task may be given any CPU scheduling priority*

allowed by the system, e.g., normal priority, but may be throttled by the present invention by only

allowing the task to operate for limited time slices at a low frequency relative to how often a

foreground process is able to request CPU cycles. ").

As per **Claim 5**, the rejection of **Claim 4** is incorporated; and <u>Douceur et al.</u> further

disclose:

- wherein the derived throttling level is enforced through a self-imposed sleep *(see*

Column 7: 63-67 through Column 8: 1, "Based on these performance results with respect to a

target performance amount 125, the background task controller 112 evaluates the work

performed by the most recent background task, and computes a time for suspending the

background process to limit its interference with the foreground process 114.").

As per **Claim 6**, the rejection of **Claim 4** is incorporated; and <u>Douceur et al.</u> further

disclose:

- wherein a utility is a multi-process utility and the derived throttling level is enforced

by reducing the parallelism of multi-processes *(see Figure 3; Column 5: 36-58, "In turn, the*

partition controllers 84_C-84_E each have a groveler worker 86_C-86_E associated therewith that

when activated, individually attempt to locate duplicate files in their corresponding file system

volume." and "In turn, when allowed to operate, each partition controller 84_C-84_E calls

functions of its corresponding groveler worker 86_C-86_E." and "... each groveler worker 86 is a

single process ...").

As per **Claim 7**, the rejection of **Claim 4** is incorporated; and <u>Douceur et al.</u> further

disclose:

- wherein the derived throttling level is enforced by reducing the amount of memory

used by a utility *(see Column 7: 53-56, "... the background task 110, may be thus limited in how*

often it is given access to the CPU 21 and/or how often it obtains access to an I/O resource 118

(e.g., a disk via an I/O manager 120).").

As per **Claim 8**, the rejection of **Claim 4** is incorporated; and <u>Douceur et al.</u> further disclose:

- wherein the derived throttling level is enforced by changing the granularity of locking *(see Column 5: 31-35, "To avoid interfering with foreground processes via file locking conflicts, opportunistic locks are used by the groveler 60 when accessing a file, which temporarily suspend access to the file by another process until the groveler 60 can release it. ")*.

As per **Claim 9**, the rejection of **Claim 4** is incorporated; and <u>Douceur et al.</u> further disclose:

- wherein the derived throttling level is enforced by reducing the amount of processing accomplished by a utility *(see Column 7: 44-49, "A task may be given any CPU scheduling priority allowed by the system, e.g., normal priority, but may be throttled by the present invention by only allowing the task to operate for limited time slices at a low frequency relative to how often a foreground process is able to request CPU cycles. ")*.

As per **Claim 10**, the rejection of **Claim 2** is incorporated; and <u>Douceur et al.</u> further disclose:

- wherein said arrangement for enforcing the derived throttling level is implemented by an agent external to a utility *(see Column 7: 34-36, "... the background task controller 112 controls the activity of a process by separately throttling each individual task of that process. ")*.

As per **Claim 11**, the rejection of **Claim 9** is incorporated; and <u>Douceur et al.</u> further disclose:

-    wherein the derived throttling level is enforced by reducing the operating system priority of a utility *(see Column 7: 63-67 through Column 8: 1, "Based on these performance results with respect to a target performance amount 125, the background task controller 112 evaluates the work performed by the most recent background task, and computes a time for suspending the background process to limit its interference with the foreground process 114.").*

Claims 12-22 are method claims corresponding to the system claims above (Claims 1-11) and, therefore, are rejected for the same reasons set forth in the rejections of Claims 1-11.

Claim 23 is a program storage device claim corresponding to the system claim above (Claim 1) and, therefore, is rejected for the same reason set forth in the rejection of Claim 1.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WEI ZHEN
SUPERVISORY PATENT EXAMINER

QC / ac
June 12, 2007